

We claim:

1. A granite block cut into slabs by a sawing device comprising a plurality of generally parallel, spaced-apart blades with each of the blades having a plurality of cutting segments mounted thereon, each of the cutting segments comprising a continuous phase impregnated with a superabrasive material selected from one of natural diamond, synthetic diamond, cubic boron nitride, and combinations thereof;

wherein each of the granite slabs as cut from the block has a surface roughness R_a of less than 1000 μ -in.

2. The as-cut granite slabs of claim 1, wherein each of the as-cut granite slabs has a surface roughness R_a of less than 500 μ -in.

3. The as-cut granite slabs of claim 1, wherein each of the as-cut granite slabs has a mean thickness variation of less than 20% of the thickness of a nominal slab target.

4. The as-cut granite slabs of claim 3, wherein each of the as-cut granite slabs has a mean thickness variation of less than 10% of the thickness of a nominal slab target.

5. The as-cut granite slabs of claim 1, wherein each of the as-cut granite slabs has an ISO 10-point height parameter R_z of less than 10,000 μ -in and a maximum peak-to-valley height R_{max} of less than 10,000 μ -in.

6. The as-cut granite slabs of claim 5, wherein each of the as-cut granite slabs has an ISO 10-point height parameter R_z of less than 5,000 μ -in and a maximum peak-to-valley height R_{max} of less than 5,000 μ -in

7. The as-cut granite slabs of claim 6, wherein each of the as-cut granite slabs has an ISO 10-point height parameter R_z of less than 4,000 μ -in and a maximum peak-to-valley height R_{max} of less than 4,000 μ -in

8. A method for cutting a granite block into slabs, said method comprises the step of subjecting said block to a cutting device comprising

a plurality of generally parallel, spaced-apart blades, with each of the blades having a plurality of cutting segments mounted thereon,

each of the segments being spaced apart from one another by a center-to-center distance,

each of the segments comprising a continuous phase impregnated with a superabrasive material selected from one of natural diamond, synthetic diamond, cubic boron nitride, and combinations thereof; wherein

there is a spacing variation of at least 1 mm between a maximum center-to-center distance and a minimum center-to-center distance of the segments,

wherein each of the granite slabs as cut from the block by said cutting device has a surface roughness R_a of less than 1000 μ -in.

9. The method of claim 8, wherein each of the as-cut granite slabs has a surface roughness R_a of less than 500 μ -in.

10. The method of claim 8, wherein each of the as-cut granite slabs has a mean thickness variation of less than 20% of the thickness of a nominal slab target.

11. The method of claim 10, wherein each of the as-cut granite slabs has a mean thickness variation of less than 10% of the thickness of a nominal slab target.

12. The method of claim 8, wherein each of the as-cut granite slabs has an ISO 10-point height parameter R_z of less than 10,000 μ -in and a maximum peak-to-valley height R_{max} of less than 10,000 μ -in.

13. The method of claim 12, wherein each of the as-cut granite slabs has an ISO 10-point height parameter R_z of less than 5,000 μ -in and a maximum peak-to-valley height R_{max} of less than 5,000 μ -in

14. The method of claim 13, wherein each of the as-cut granite slabs has an ISO 10-point height parameter R_z of less than 4,000 μ -in and a maximum peak-to-valley height R_{max} of less than 4,000 μ -in

15. A method for cutting a granite block into slabs, with the as-cut granite slabs having an as-cut surface roughness R_a of less than 1000 μ -in, and a mean thickness variation of less than 20% of the thickness of a nominal slab target, by employing a cutting device comprising

a plurality of generally parallel, spaced-apart blades with each of the blades having a plurality of cutting segments mounted thereon,

each of the cutting segments comprising a continuous phase impregnated with a superabrasive material selected from one of natural diamond, synthetic diamond, cubic boron nitride, and combinations thereof;

each of the cutting segments having a wear resistance property varying at least 10% from at least another segment mounted on the same blade, wherein the varied wear resistance property is selected from the group of a) center-to-center spacing of the segments along the length of the blade; b) concentration of superabrasive materials in each segment; c) grade of superabrasive materials in each segment as measured by its compressive fracture strength; d) composition of superabrasive materials in each segment; and e) length of the segment.

16. The method of claim 15, wherein the as-cut granite slabs have a mean thickness variation of less than 10% of the thickness of a nominal slab target

17. The method of claim 15, wherein each of the as-cut granite slabs has an ISO 10-point height parameter R_z of less than 10,000 μ -in and a maximum peak-to-valley height R_{max} of less than 10,000 μ -in.

18. The method of claim 13, wherein each of the as-cut granite slabs has an ISO 10-point height parameter R_z of less than 4,000 μ -in and a maximum peak-to-valley height R_{max} of less than 4,000 μ -in

19. A method for cutting a granite block into slabs with an excess cut width (t_{xs}) of less than 2mm, said method comprises the step of subjecting said granite block to a cutting device comprising
- a plurality of generally parallel, spaced-apart blades with each of the blades having a plurality of cutting segments mounted thereon, and
 - each of the cutting segments comprising a continuous phase impregnated with a superabrasive material selected from one of natural diamond, synthetic diamond, cubic boron nitride, and combinations thereof.
20. The method of claim 19, wherein said excess cut width (t_{xs}) is less than 1mm.